

The Respiratory Virus Calm After the Storm

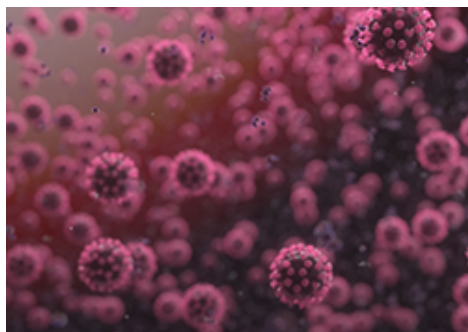
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If you're like me and you feel as though you didn't care for any children hospitalized with respiratory syncytial virus (RSV) bronchiolitis or influenza pneumonia this past respiratory season, you may be right.

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If you're like me and you feel as though you didn't care for any children hospitalized with respiratory syncytial virus (RSV) bronchiolitis or influenza pneumonia this past respiratory season, you may be right. In this month's *Pediatrics* ([10.1542/peds.2021-051462](#)), Heddadin and colleagues describe the impact of infection risk mitigation strategies aimed at harnessing COVID-19 on the rates of RSV and influenza acute respiratory illness (ARI).

While recent studies have shown a reduced utilization of healthcare services during the COVID-19 pandemic,^{1,2} there remains a paucity of prospectively curated clinical and viral detection data describing the prevalence of two of the most common respiratory viruses affecting children before and after COVID-19. Until now.

Using the existing infrastructure of the New Vaccine Surveillance Network funded by the Centers for Disease Control and Prevention, Heddadin et al prospectively collected clinical symptom, viral testing, and disposition data on children <18 years presenting to emergency department (ED) and inpatient settings at seven different pediatric medical centers. Cases of ARI were defined as having one or more symptoms including fever, upper (e.g. congestion) and lower (e.g. wheezing) respiratory symptoms, brief resolved unexplained events, or myalgias. The relationship between COVID-19 mitigation strategies and burden of RSV and influenza disease was measured by comparing rates of infectivity before and after regional timeframes for initiating preventative measures such as school-closures and stay-at-home orders. Then, using statistical modeling, study authors investigated whether the frequency of ARI due to RSV and influenza and viral test positivity rates differed between pre- and post-COVID-19 mitigation measures.

In all, the study enrolled over 25,000 children (median age 19 months) during the months of December 2016 to April 2017 and then October to April each year from 2017 to 2020. In 2020, there was an observed reduction of 10.6 ARI cases (95% CI 5.92, 15.2; $P < .001$) per calendar week at each site compared to the pre-COVID-19 era. While the magnitude may not be overly impressive at first glance, a little napkin math extended over the entire respiratory season would suggest each site saw approximately 250 fewer cases of

RSV or influenza in the COVID-19 era! And while one could argue that fewer patients were seeking care in the ED or inpatient setting, the rate of test positivity also significantly declined. In fact, the odds of testing positive for RSV declined by ~64% (95% CI 23.5% - 82.9%; $P=.008$) and for influenza by ~46% (95% CI 7.64% - 68.2%; $P=.024$). These prospectively collected data suggest infection mitigation measures aimed at COVID-19 may also play a role in reducing the risk of moderate to severe ARI due to RSV or influenza. While we cannot ascertain a causal relationship between any single infection mitigation strategy and the observed findings, the results shared by Heddadin and colleagues nonetheless suggest that community-based interventions may be effective in reducing the burden of RSV and influenza disease. Controversy surrounding community mandates and government policy aside, the observation that RSV and influenza virtually disappeared 2-4 weeks after each site's community mitigation strategies were implemented suggest public health experts have potentially effective options at reducing respiratory illness in children when necessary. The more difficult question becomes when and in what circumstances such approaches would be warranted, a question far beyond the scope of this excellent article by Heddadin et al.

References:

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2. Markham JL, Richardson T, DePorre A, Teufel RJ, Hersh AL, Fleegler EW, Antiel RM, Williams DC, Goldin AB, Shah SS. Inpatient use and outcomes at children's hospitals during the early COVID-19 pandemic. *Pediatrics.* 2021 Jun;147(6)e2020044735

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